**Task 2: Theory (9 points)**

**1st Scenario: Financial Portfolio**

1. **Domain Situation:** Evaluate the aggregate performance of a diversified portfolio made up of multiple stocks.
2. **Visualization Design Description:** **Stacked line chart** could be used to represent the cumulative stock prices. Each stock's time series is stacked on top of one another, with the areas between each time series filled to show their combined value over time.
3. **Justification:** A stacked area chart effectively shows the total value of the portfolio and how individual stock contributions change over time. It highlights the overall trend of the portfolio's performance, making it easier to identify growth or decline in aggregate value, and assess the impact of individual stocks on the total portfolio. Depending on the order, one could also identify subgroup behavior.

**2nd Scenario: Risk Analysis**

1. **Domain Situation:** Assess the volatility of multiple stock prices to identify risks.
2. **Visualization Design Description:** A **braided graph** would be suitable here. All time are plotted on the space with the same common baseline. The intersection points in time where the order changes are clearly identified, ad each filled area representing a series is cut into two different segments at the intersection points, and the individual segments and then sorted and the highest value is printed first.
3. **Justification:** This visualization would allow for easy comparison of the performance of various stocks and identify periods of high volatility or stability. The intersections help to highlight critical moments where stocks cross each other in terms of performance, which is crucial for identifying potential risks and making informed decisions on investment.

**3rd Scenario: Customer Investment Insights**

1. **Domain Situation:** For providing insights to customers regarding their investments, the bank could want to show the performance, focusing on individual stock performance and comparison against a benchmark index.
2. **Visualization Design Description:** A line graph with individual stock prices plotted as separate lines alongside a benchmark index line.
3. **Justification:** This design is straightforward and allows customers to easily track the performance of their specific investments against a relevant benchmark. It helps in understanding how their stocks are performing individually and in comparison to the market index, helping them to make informed decisions about their investment portfolio.